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वायु चालित तरल शक्ति — पाँच छेद वाले दिशात्मक नियन्त्रण वाल्व

भाग 3 वाल्व कार्यों के संचार के लिए कूट तन्त्र

Indian Standard

PNEUMATIC FLUID POWER — FIVE PORT DIRECTIONAL CONTROL VALVES

PART 3 CODE SYSTEM FOR COMMUNICATION OF VALVE FUNCTIONS

ICS 23.100.30

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

August 2001

Price Group 4

Pneumatic Fluid Power Systems Sectional Committee, BP 16

NATIONAL FOREWORD

This Indian Standard (Part 3) which is identical with ISO 5599-3 : 1990 'Pneumatic fluid power — Five-port directional control valves: Part 3 Code system for communication of valve functions' isued by the International Organisation for Standardization (ISO), was adopted by the Bureau of Indian Standards on the recommendation of the Pneumatic Fluid Power Systems Sectional Committee and approval of the Production Engineering Division Council.

In pneumatic fluid power systems, power is transmitted and controlled through gas under pressure within an enclosed circuit. The various devices for gas distribution and control can be either mounted directly onto the pipeline or mounted on interface surfaces, allowing quicker dismantling and promoting equipment interchangeability.

Pneumatic directional control valves of the five port, four way type, mounted on interface surfaces control the flow of compressed gas.

When valve operators and interface sizes are published in the literature, it is convenient to refer to them by codes. This simplifies the descriptions and provides uniformity of valve function definitions.

The text of the ISO Standard has been approved as suitable for publication as Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.

b) Comma (,) has been used as a decimal marker while in Indian Standards the current practice is to use a point (.) as the decimal marker.

In this adopted standard reference appears to the following International Standard for which Indian Standard also exists. The corresponding Indian Standard which is to be substituted in its place is listed below along with its degree of equivalence for the edition indicated:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 5598 : 1985 Fluid power systems and components — Vocabulary	IS 10416 : 1992 Fluid power system and components — Vocabulary (*first revision*)	Identical

The technical committee responsible for the preparation of this standard has reviewed the provisions of the following ISO Standards and has decided that they are acceptable for use in conjunction with this standard:

ISO 5599-1 : 1989	Pneumatic fluid power — Five-port directional control valves — Part 1: Mounting interface surfaces without electrical connector
ISO 5599-2 : 1990	Pneumatic fluid power — Five-port directional control valves — Part 2: Mounting interface surfaces with optional electrical connector

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

PNEUMATIC FLUID POWER — FIVE PORT DIRECTIONAL CONTROL VALVES

PART 3 CODE SYSTEM FOR COMMUNICATION OF VALVE FUNCTIONS

1 Scope

This part of ISO 5599 specifies the codification system to be used for communication purposes. It defines functions of valve operators used on the various sizes of mounting surfaces complying with the requirements of ISO 5599-1. This codification system is not to be applied directly to the product as it does not describe the many attributes which affect performance interchangeability (for example pressure rating, electrical characteristics, flow rating, overall physical size).

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 5599. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 5599 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 5598 : 1985, *Fluid power systems and components — Vocabulary.*

ISO 5599-1 : 1989, *Pneumatic fluid power — Five-port directional control valves — Part 1: Mounting interface surfaces without electrical connector.*

ISO 5599-2 : 1989, *Pneumatic fluid power — Five-port directional control valves — Part 2: Mounting interface surfaces with electrical connector.*

3 Definitions

For the purposes of this part of ISO 5599, the definitions given in ISO 5598 apply.

4 Coding principle

4.1 The code of the size and valve function (in relation to the interface) comprises three digits, as follows:

Dimension	Function
n_1	n_2n_3

n_1 denotes the size of the interface. The size coding specified in ISO 5599-1 and ISO 5599-2 shall be used.

n_2n_3 denotes the valve function according to clause 5. If it is listed in this clause, the valve is allocated a code if no connections other than those shown in ISO 5599-1 or ISO 5599-2 are made to the sub-base and if the sub-base connections will fulfil the valve function.

Numbers 00 to 69 denote valve functions specified in ISO 5599-1 that do not have an electrical connection at the mounting interface.

Numbers 70 to 99 denote valve functions specified in ISO 5599-2 that have an electrical connection at the mounting interface.

Number 00 denotes a special function, i.e. a valve function not specified in this part of ISO 5599.

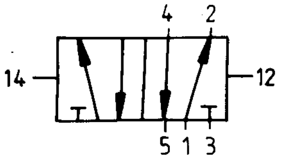
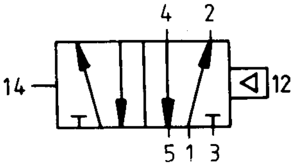
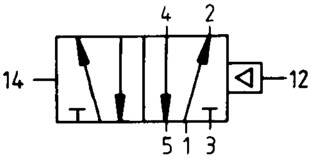
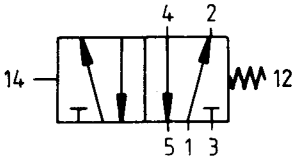
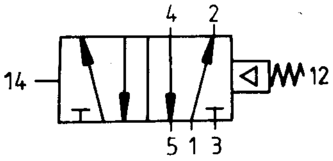
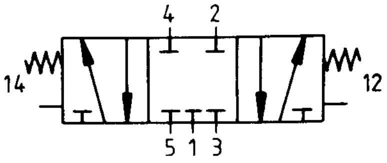
4.2 Numbers are grouped into the following categories of operations:

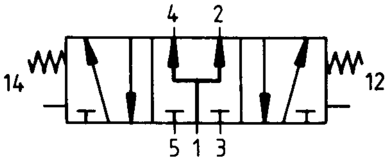
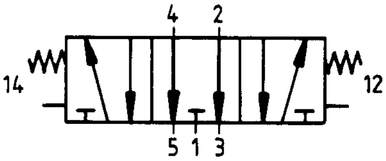
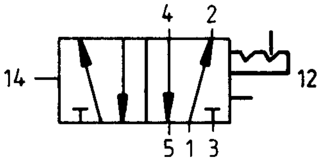
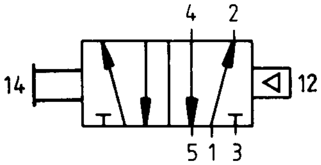
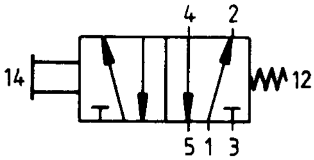
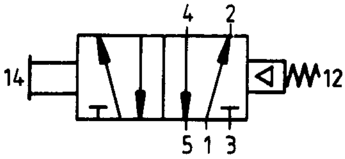
- Pilot-operated
- Mechanical, manually operated
- Direct solenoid-operated
- Solenoid pilot-operated

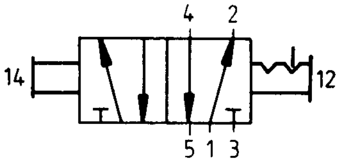
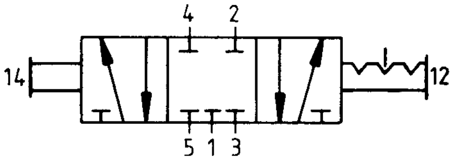
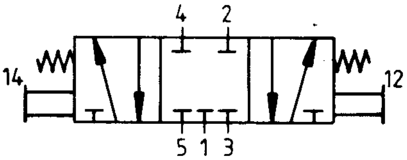
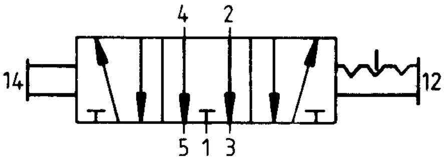
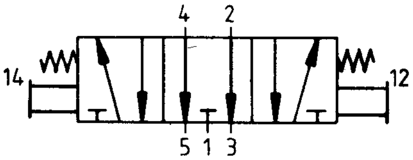
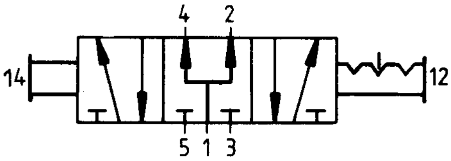
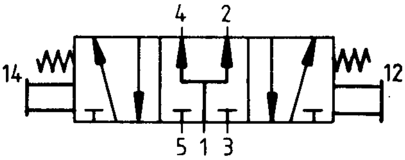
5 Valve function symbols

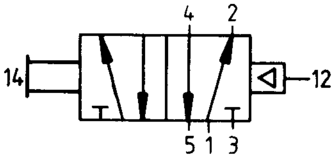
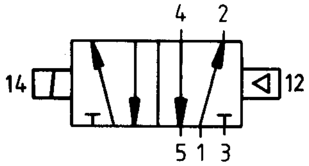
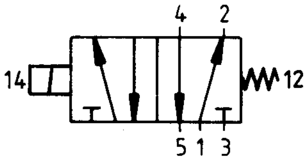
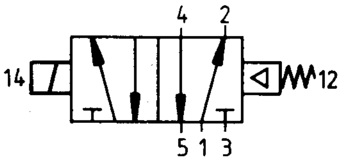
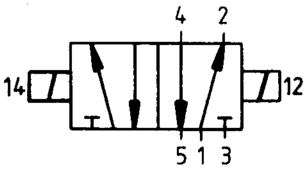
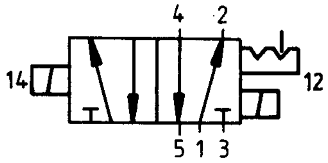
5.1 The valve function symbols associated with the code numbers in the following figures correspond to the shown position for operators and flow directions.

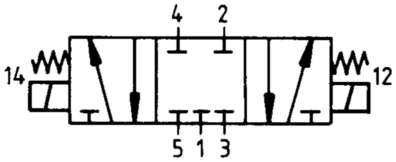
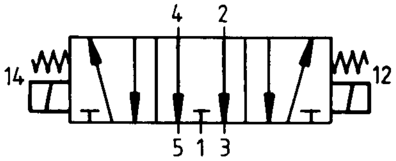
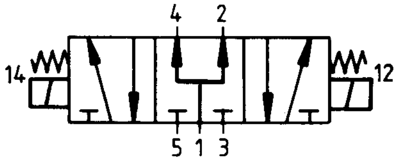
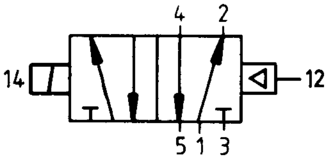
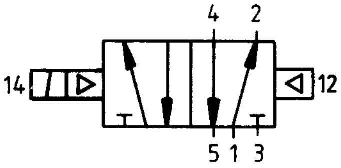
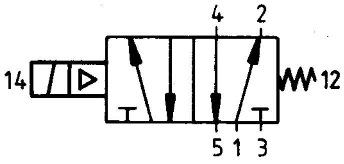
5.2 Different operator positions or flow directions are not specified in this part of ISO 5599.

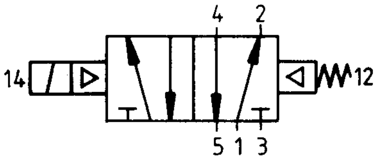
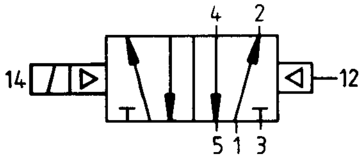
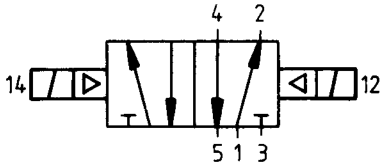
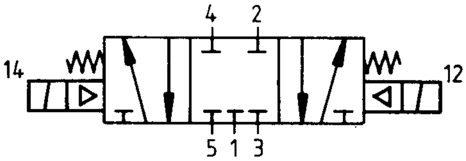
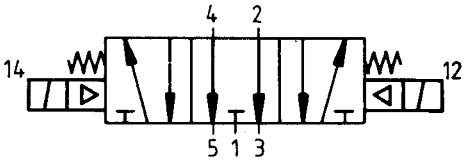
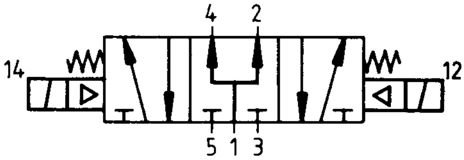
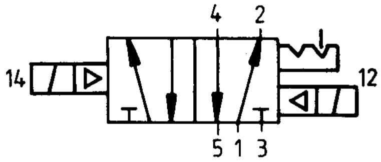
Function code		Valve function symbol	Remarks
Without electrical connection at mounting interface	With electrical connection at mounting interface		
01			Two-position, air-actuated at both ends
02			Two-position, air-actuated, internal supply air return
03			Two-position, air-actuated, external supply air return
04			Two-position, air-actuated, spring return
05			Two-position, air-actuated, spring and internal supply air return
06			Three-position, spring-centred, air-actuated at both ends, all ports closerl

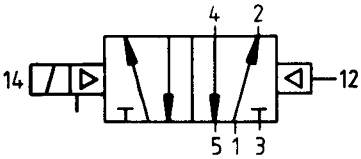
Function code		Valve function symbol	Remarks
Without electrical connection at mounting interface	With electrical connection at mounting interface		
07			Three-position, spring-centred, air-actuated at both ends, load ports open to centre port
08			Three-position, spring-centred, air-actuated at both ends, load ports open to exhaust ports
09			Two-position, air-actuated at both ends, detented
10 to **18**		Reserved	
19			Two-position, manually actuated, internal supply air return
20			Two-position, manually actuated, spring return
21			Two-position, manually actuated, spring and internal supply air return

Function code		Valve function symbol	Remarks
Without electrical connection at mounting interface	With electrical connection at mounting interface		
22			Two-position, detented, manually actuated, manual return
23			Three-position, detented, manually actuated at both ends, all ports closed
24			Three-position, spring-centred, manually actuated at both ends, all ports closed
25			Three-position, detented, manually actuated at both ends, load ports open to exhaust ports
26			Three-position, spring-centred, manually actuated at both ends, load ports open to exhaust ports
27			Three-position, detented, manually actuated at both ends, load ports open to centre port
28			Three-position, spring-centred, manually actuated at both ends, load ports open to centre port

Function code		Valve function symbol	Remarks
Without electrical connection at mounting interface	With electrical connection at mounting interface		
29			Two-position, manually actuated, external supply air return
30 to 40	70	Reserved	
41	71		Two-position, direct solenoid-actuated, internal supply air return
42	72		Two-position, direct solenoid-actuated, spring-returned
43	73		Two-position, direct solenoid-actuated, spring and internal supply air return
44	74		Two-position, direct solenoid-actuated at both sides
45	75		Two-position, detented, direct solenoid-actuated at both ends

Function code		**Valve function symbol**	**Remarks**
Without electrical connection at mounting interface	With electrical connection at mounting interface		
46	**76**		Three-position, spring-centred, direct solenoid-actuated at both ends, all ports closed
47	**77**		Three-position, spring-centred, direct solenoid-operated at both ends, load ports open to exhaust ports
48	**78**		Three-position, spring-centred, direct solenoid-actuated at both ends, load ports open to centre port
49	**79**		Two position, direct solenoid-actuated, external supply air returned
50	**80**	Reserved	
51	**81**		Two-position, internal supply, solenoid pilot-actuated, air return
52	**82**		Two-position, internal supply, solenoid pilot-actuated, spring return

Function code		Valve function symbol	Remarks
Without electrical connection at mounting interface	With electrical connection at mounting interface		
53	83		Two-position, internal supply, solenoid pilot-actuated, air and spring return
54	84		Two-position, internal supply, solenoid pilot-actuated, external supply air return
55	85		Two-position, internal supply, solenoid pilot-actuated at both ends
56	86		Three-position, spring-centred, internal supply, solenoid pilot-actuated at both ends, all ports closed
57	87		Three-position, spring-centred, internal supply, solenoid pilot-actuated at both ends, load ports open to exhaust ports
58	88		Three-position, spring-centred, internal supply, solenoid pilot-actuated at both ends, load ports open to centre port
59	89		Two-position, internal supply, detented, solenoid pilot-actuated at both ends

Function code		Valve function symbol	Remarks
Without electrical connection at mounting interface	With electrical connection at mounting interface		
60 to 63	90 to 93	Reserved	
64	94		Two-position, external supply, solenoid pilot-actuated, air return
65 to 68	95 to 98	Reserved	
69	99	Special	Valves connecting to sub-bases complying with ISO 5599-1, the function of which is not listed, shall be coded 69 or 99. The functional symbol shall be given.

Bureau of Indian Standards

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Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards: Monthly Additions'.

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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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